

Applicant respectfully requests that the objection to claims 2, 7, 8, 16, 18, 22, 23, 27-32 and 35 be reconsidered and withdrawn.

II. Claim Rejections under 35 U.S.C. § 112

Claims 21-22, and 33-35 stand rejected under 35 U.S.C. § 112, second paragraph as being incomplete for omitting essential elements which amount to a gap between elements. Specifically, the Examiner states that the omitted element is the element on which a next reproduction is being performed. Further, the Examiner states that the rejection would be overcome by amending claim 21-22, 33 and 35 to add “of the ink cartridge” after “next reproduction.” Applicant has amended the claims according to the Examiner’s suggestions, the scope of the claims have not been narrowed. Applicant respectfully requests that the rejection of claims 21-23 and 33-35 under 35 U.S.C. § 112 be reconsidered and withdrawn.

III. Claim Rejections under 35 U.S.C. § 102

Claims 3-5 and 7 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Cowger et al. (U.S. Patent No. 5,788,388). Applicant traverses the rejection for at least the reasons discussed below.

A claim is anticipated only if each and every element as set forth in the claim is found either expressly or inherently in a single prior art reference. Verdegaal Bros. v. Union Oil Co. of California, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). In fact, the identical invention must be shown in as complete detail as contained in the claim. Richardson v. Suzuki

Motor Co., 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). Applicant submits that the Cowger reference fails to disclose each and every element of the claims.

Claims 3-5 and 7 recite that “the data includes data indicative of a maintenance processing required for use in a reproduction of the ink cartridge.” However, Examiner has only pointed to date within the reference that is used, at best, to indicate when an ink cartridge needs to be refilled or replaced. For example, the Examiner states on page 11 of the present office action that “data regarding ink shelf life and freshness/expiration date are inherently related to maintenance processing.” The Examiner further explains, that “if the ink has a low shelf life or if a freshness/expiration date is exceeded the ink cartridge or ink in the ink cartridge should be replaced.” As the Examiner explains, the data to which is relied upon is data used to indicate when an ink cartridge needs to be refilled or replaced. However, this recitation of the claim is drawn to data indicative of the maintenance processing and not to data used to determine when maintenance processing is required or needed. The data of Cowger does not disclose information of the past maintenance(s) that was actually conducted on that particular ink cartridge. For example, the data of Cowger does not disclose how a refill was conducted. In the present invention, the ink cartridge memory is provided with an area in which data indicative of the past maintenance is stored, so that the data can be used when the cartridge reproduction process is conducted.

Further regarding claim 5, the Examiner states that (in paragraph b of page 11 of the Office Action) that Cowger discloses data related to ink shelf life and freshness/expiration date which is inherently related to a condition of exchange of a part in the ink cartridge. Applicant

submits that ink shelf life or freshness has nothing to do with part replacement. Furthermore, the Cowger reference is not at all directed toward determining whether a part needs to be replaced. Moreover, Applicant submits that the reference is not directed toward considering the condition of the parts of the ink cartridge or whether or not a part has been replaced. The Cowger reference only deals with the condition and amount of ink in the ink cartridge.

Therefore, since the Cowger reference fails to teach all of the claim limitations of the present invention, Applicant respectfully requests that the rejection of claims 3-5 and 7 be reconsidered and withdrawn.

IV. Claim Rejections under 35 U.S.C. § 103

A. Claims 1, 2, 6 and 8-12

Claims 1, 2, 6 and 8-12 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Cowger et al. (U.S. Patent No. 5,788,388) in view of Childers et al. (U.S. Patent No. 6,161,913). Applicant traverses the rejection for at least the reasons discussed below.

To establish a *prima facie* case of obviousness the Examiner must show that the prior art references, when combined, teach or suggest all of the claim limitations. See MPEP § 2143. Applicant respectfully submits that the references cited above by the Examiner fail to teach or suggest all of the claim limitations as set forth in the present application. Regarding independent claims 1 and 8, in Childers '913, air accumulation value is stored in a chip 54 of a printhead for determining a life of the printhead. Slope of solubility is stored in an ink cartridge. At line 20, column 5, a measure of the average temperature is disclosed, but there is no mention as to where

the measure of the average temperature is stored. Further, the measure of the average temperature is used to update the air accumulation value, and is not used when the ink cartridge is reproduced and when the reproduced ink cartridge is used. Said differently, since the claims require that the data be related to the environment of use of the ink cartridge, and since the air accumulation value is related to the air that has accumulated in the printhead, this data is not used when the ink cartridge is reproduced or when the ink cartridge is used. Accordingly, since the air accumulation value is not "related to the environment of use of the ink cartridge," the reference fail to teach or disclose all of the claim limitations as set forth in claims 1 and 8. Therefore, Applicant respectfully requests that the rejection of independent claims 1 and 8 under 35 U.S.C. § 103 be reconsidered and withdrawn.

Since claims 2, 6 and 9-12 depend from independent claims 1 and 8, Applicant respectfully submits that claims 2, 6 and 9-12 are allowable at least by virtue of their dependency from claims 1 and 8, in view of the discussions above.

B. Claims 13 and 24-26

Claims 13 and 24-26 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Cowger et al. (U.S. Patent No. 5,788,388) in view of Childers et al. (EP 854,044). This rejection is traversed because Applicants' invention patentably distinguishes over the reference. However, since the priority date of the present application is earlier than the publication date of the cited reference (Childers EP 854,044), it is not even prior art, and the § 103 rejection is improper. Applicants submit herewith a verified translation of the priority documents (Japanese Application Nos. 10-158658 & 10-158659) in order to perfect the claim for priority. Accordingly, Applicant

respectfully requests that the rejection of claims 13 and 24-26 under 35 U.S.C. § 103 be reconsidered and withdrawn.

C. Claims 14-20

Claims 14-20 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Cowger et al. (U.S. Patent No. 5,788,388) in view of Childers et al. (U.S. Patent No. 6,161,913) and Childers et al. (EP 854,044). This rejection is traversed because Applicants' invention patentably distinguishes over the reference. However, since the priority date of the present application is earlier than the publication date of the cited reference (Childers EP 854,044), it is not even prior art, and the § 103 rejection is improper. Applicants submit herewith a verified translation of the priority documents (Japanese Application Nos. 10-158658 & 10-158659) in order to perfect the claim for priority. Accordingly, Applicant respectfully requests that the rejection of claims 14-20 under 35 U.S.C. § 103 be reconsidered and withdrawn.

V. Conclusion

Reconsideration and allowance of all claims are respectfully requested in view of the following remarks. In view of the foregoing, the claims are now believed to be in form for allowance, and such action is hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, he is kindly requested to contact the undersigned at the telephone number listed below.

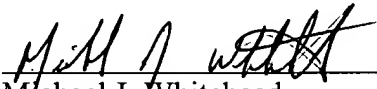
AMENDMENT UNDER 37 C.F.R. § 1.111
Appln. No.: 09/318,268

Attorney Docket No.: Q54505

Applicant hereby petitions for any extension of time which may be required to maintain the pendency of this case, and any required fee, except for the Issue Fee, for such extension is to be charged to Deposit Account No. 19-4880.

Respectfully submitted,

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APPENDIX

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

The claims are amended as follows:

1. (Twice Amended) An ink cartridge for an ink jet type printing apparatus having a print head, the ink cartridge comprising:

a container having an ink chamber for containing ink therein;

an ink supply port for supplying the ink from said ink chamber to the print head; and

a memory device [for storing]formatted to store data [related to]indicative of the history of the ink cartridge, data [related to] indicative of environment of use of the ink cartridge, and data [related to] indicative of cleaning of the print head, said memory device having an area in which the data is stored in a rewritable manner.

3. (Twice Amended) An ink cartridge for an ink jet type printing apparatus having a print head, the ink cartridge comprising:

a container having an ink chamber for containing ink therein;

an ink supply port for supplying the ink from said ink chamber to the print head;

a memory device [for storing]formatted to store data [related to] indicative of the history of the ink cartridge, said memory device having an area in which the data is stored in a rewritable manner; and

wherein the data includes data [related to] indicative of a maintenance processing required for use in a reproduction of the ink cartridge.

4. (Twice Amended) An ink cartridge for an ink jet type printing apparatus having a print head, the ink cartridge comprising:

a container having an ink chamber for containing ink therein;

an ink supply port for supplying the ink from said ink chamber to the print head;

a memory device [for storing]formatted to store data [related to] indicative of the history of the ink cartridge, said memory device having an area in which the data is stored in a rewritable manner; and

wherein the data includes data [related to] indicative of a maintenance processing required for use in a reproduction of the ink cartridge[.];

wherein the data includes data [related to] indicative of a condition of cleaning.

5. (Twice Amended) An ink cartridge for an ink jet type printing apparatus having a print head, the ink cartridge comprising:

a container having an ink chamber for containing ink therein;

an ink supply port for supplying the ink from said ink chamber to the print head;

a memory device [for storing]formatted to store data [related to] indicative of the history of the ink cartridge, said memory device having an area in which the data is stored in a rewritable manner;

wherein the data includes data [related to] indicative of a maintenance processing required for use in a reproduction of the ink cartridge; and

wherein the data includes data [related to] indicative of a condition of exchange of a part of the ink cartridge.

7. (Twice Amended) An ink cartridge for an ink jet type printing apparatus having a print head, the ink cartridge comprising:

a container having an ink chamber for containing ink therein;

an ink supply port for supplying the ink from said ink chamber to the print head;

a memory device [for storing]formatted to store data [related to] indicative of the history of the ink cartridge, said memory device having an area in which the data is stored in a rewritable manner; [and]

wherein the data includes data [related to] indicative of the time of final ink depletion of the ink cartridge; and

wherein the data includes data indicative of a maintenance processing required for use in a reproduction of the ink cartridge.

8. (Twice Amended) An ink cartridge for an ink jet type printing apparatus having a print head, the ink cartridge comprising:

a container having an ink chamber for containing ink therein;

an ink supply port for supplying the ink from said ink chamber to the print head;

a memory device [for storing]formatted to store data [related to] indicative of the history of the ink cartridge, said memory device has an area in which the data is stored in a rewritable manner; and

wherein the data includes data [related to] indicative of an environment in which the ink cartridge is used.

13. (Twice Amended)An ink cartridge for an ink jet type printing apparatus having a print head, the ink cartridge comprising:

a container having an ink chamber for containing ink therein;

an ink supply port for supplying the ink from said ink chamber to the print head; and

a memory device for storing data related to the ink or the ink cartridge, said memory device storing therein data relating to a minimum ink amount to be contained in the ink cartridge,

said memory device having an area in which [the] data indicative of a residual ink amount is stored in a rewritable manner;

wherein said ink cartridge is operable to alter an ink discharge operation based on the stored data relating to the minimum ink amount and the residual ink amount.

21. (Twice Amended) An ink-jet printing apparatus according to claim 14, wherein said control device judges from the data, stored in said memory device, whether or not a next reproduction of the ink cartridge is possible.

22. (Twice Amended) An ink-jet printing apparatus according to claim 14, wherein said control device judges whether or not the next reproduction of the ink cartridge is possible in accordance with the data stored in said memory device, and the control device displays an indication that the ink cartridge is to be discarded when it judges that the reproduction is impossible.

23. (Twice Amended) An ink-jet printing apparatus according to claim 21, wherein said judgment is made in accordance with the number of [reproduction] reproductions, a lifetime, a time period after detection of ink depletion, and an environment of use.

27. (Twice Amended) A cartridge reproducing device for an ink cartridge for an ink jet type printing apparatus having a print head, the reproducing device comprising:

means for reading data, related to a history of use of the ink cartridge to be reproduced, from a memory device provided on the ink cartridge;

a control device which controls a reproduction processing apparatus in accordance with said data, and causes at least data, representing the number of [reproduction] reproductions and the time of reproduction, to be stored in said memory device after the reproducing operation is finished; and

said control device determines when and if the print head needs cleaning and controls the cleaning.

33. (Twice Amended) An ink-jet printing apparatus comprising:

a print head for ejecting ink droplets;

an ink cartridge containing ink therein for supplying the ink to said print head;

a memory device storing data related to the ink cartridge, data related to environment of use of the ink cartridge, and data related to cleaning of the print head; and

a control device accessible to said memory device for controlling said print head in accordance with data supplied from the exterior, said control device judges, from the data stored in said memory device, whether the next reproduction of the ink cartridge is possible.



35. (Twice Amended) An ink-jet printing apparatus according to claim 14, wherein said control device judges whether a next reproduction of the ink cartridge is possible in accordance with the data stored in said memory device, and the control device displays that the ink cartridge is discarded if it judges that the reproduction is impossible.